Description of Specialized Nursing Practices in Neonatal and Pediatric ECMO Patients: Experience From a High-Complexity Latin American Center

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Background: This study describes a competency-based nurse practice model for the daily management of NEO/PED patients on ECMO patients, using a competency-based approach based on safe, comprehensive, and humane care, advanced practice principles, institutional protocols, and international standard.

Methods: A retrospective study was conducted that included VA and VV NEO PED ECMO cases from December 2020 to May 2025. The daily activities of the registered nurse group were analyzed.

Results: The cohort included 153 cases, 50 of which were NEO ECMO and 103 PED ECMO. The overall ECMO survival rate was 63.5%, with a complication rate of 26%, including air embolism, circuit thrombosis, and oxygenator failure.

To achieve these results, the nursing practiced model consisted in seven steps:

1. Assessment and Planning: Daily assessment of the patient's clinical status, ECMO circuit, and potential complications.

2. ECMO Circuit Management: Monitoring and adjusting ECMO settings, flow rates, and pressures.

3. Hemodynamic Monitoring: Observation of the patient's vital signs, blood gases, and laboratory results.

4. Medication Management: Administration of medications, such as anticoagulants and sedatives.

5. Troubleshooting and Intervention: Identifying and addressing ECMO-related complications, such as circuit thrombosis, air embolism and oxygenator failure.

6. Collaboration and Communication: Working with the multidisciplinary team to optimize patient care and outcomes.

7. Education and quality Improvement: Daily ELSO database recording, reporting of quality indicators, outpatient follow-up, and family education.

Conclusions: Applying this method of care by a Registered Nurse in ECMO, we can optimize humanized care, promote patient safety, and provide a structured framework for work in NEO PED patients on ECMO therapy.

CON EL RESPALDO

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